WHAT IS CLAIMED IS:

1. A semiconductor light emitting device comprising:

a substrate; and

a light emitting layer, which is provided on the substrate, of a quantum well structure including well layers and barrier layers which are composed of Group III nitride semiconductors, wherein

an impurity composed of an element in Periodic Table Group 6B is substantially uniformly doped in said well layers and said barrier layers.

2. The semiconductor light emitting device according to claim 1, wherein

a maximum value of a concentration of said impurity doped in said well layers and said barrier layers is less than or equal to five times as high as a minimum value of the concentration of said impurity.

3. The semiconductor light emitting device according to claim 1 or claim 2, wherein

said substrate is a Group III nitride semiconductor substrate whose surface dislocation density is less than 1×10^{8} cm^{-2}.

4. A semiconductor light emitting device comprising:

a Group III nitride semiconductor substrate whose surface dislocation density is less than 1×10^{8} cm^{-2}; and

a light emitting layer, which is provided on the substrate,

of a quantum well structure including well layers and barrier layers which are composed of Group III nitride semiconductors, and wherein

said light emitting layer includes an element in Periodic Table Group 6B as an impurity.

5. The semiconductor light emitting device according to any one of claim 1 to claim 4, comprising

a semiconductor layer including an element in Periodic Table Group 4B as an impurity between said substrate and said light emitting layer.

6. The semiconductor light emitting device according to any one of claim 1 to claim 5, wherein

said element in Periodic Table Group 6B is O or S.

7. The semiconductor light emitting device according to any one of claim 1 to claim 6, wherein

said barrier layers include said element in Periodic Table Group 6B, and include regions having an n-type conductive pattern.

8. The semiconductor light emitting device according to any one of claim 1 to claim 7, wherein,

given that a thickness of said light emitting layer is d (nm), an average volume concentration in said light emitting layer of said element in Periodic Table Group 6B is x (cm^{-3}), and a number of quantum wells is n, an impurity concentration defined by

$xd \times 10^{-7}/n$

is greater than or equal to 3×10^{11} cm^{-2}.

9. The semiconductor light emitting device according to any one of claim 1 to claim 8, wherein,

given that a thickness of said light emitting layer is d (nm), an average carrier concentration in said light emitting layer is y (cm^{-3}), and a number of quantum wells is n, a carrier concentration defined by

$yd\times10^{-7}/n$

is greater than or equal to 1.5×10^{10} cm^{-2}.

10. The semiconductor light emitting device according to any one of claim 1 to claim 9, wherein

said barrier layers include In.

11. A method of manufacturing a semiconductor light emitting device, comprising

forming a light emitting layer composed of a Group III nitride semiconductors on a substrate by a vapor phase deposition method, by using a doping gas containing an element in Periodic Table Group 6B, and a mixed gas including a Group III precursor gas and a nitrogen source gas, wherein

a molar flow rate of the doping gas is made excessive more than a molar flow rate of the Group III precursor gas.

12. The method of manufacturing a semiconductor light emitting device according to claim 11, wherein

the step of forming said light emitting layer is executed after forming Group III nitride semiconductor layers containing an element in Periodic Table Group 4B as an impurity on said substrate by a vapor phase deposition method.

13. The method of manufacturing a semiconductor light emitting device according to claim 12, wherein

after forming Group III nitride semiconductor layers containing an element in Periodic Table Group 4B as an impurity, a film-forming gas used for forming the Group III nitride semiconductor layers is purged, and next, said light emitting layer is formed.

14. The method of manufacturing a semiconductor light emitting device according to any one of claim 11 to claim 13, wherein

said light emitting layer has a quantum well structure, the step of forming said light emitting layer includes a step of forming well layers and barrier layers alternately, and said doping gas is introduced at the time of forming said barrier layers.

15. The method of manufacturing a semiconductor light emitting device according to any one of claim 11 to claim 14, wherein

the element in Periodic Table Group 6B is O or S.